

Anderson-Cottonwood Irrigation District Churn Creek Lateral Improvements

1. Project Description

<i>Project Type:</i>	System improvement
<i>Location:</i>	Shasta County
<i>Proponent(s):</i>	Anderson-Cottonwood Irrigation District (ACID or District)
<i>Project Beneficiaries:</i>	ACID, downstream users, the environment, the Sacramento-San Joaquin Delta
<u><i>Total Project Components:</i></u>	Replacement of open ditch and undersized pipe reaches (totaling about 8,800 linear feet) with new 60-inch-diameter pipeline, plus design and construction of either an inverted siphon or elevated flume across the Sacramento River near the South Bonnyview Road bridge
<i>Potential Supply:</i>	19,000 acre-feet per year (ac-ft/yr)
<i>Cost:</i>	\$14.4 million
<i>Current Funding:</i>	\$100,000 through California Department of Water Resources (DWR) Water Conservation Grant, earmarked for feasibility studies
<u><i>Short-term Components:</i></u>	Replacement of open ditch and undersized pipe reaches east of the Sacramento River (totaling approximately 7,300 linear feet) with new 60-inch-diameter pipeline
<i>Potential Supply (by 2003):</i>	9,000 ac-ft/yr
<i>Cost:</i>	\$5.4 million
<i>Current Funding:</i>	\$100,000 through California Department of Water Resources (DWR) Water Conservation Grant, earmarked for feasibility studies
<i>Implementation Challenges:</i>	Water rights implications, environmental regulatory compliance, determination of seepage losses, construction period, construction right-of-ways, river crossing

Key Agencies:

U.S. Bureau of Reclamation (USBR), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG), National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA), U.S. Army Corps of Engineers (COE), State Lands Commission

Summary

The purpose of this evaluation is to technically evaluate a project that would improve a portion of ACID's irrigation system, replacing the Churn Creek Lateral and the Bonnyview Diversion on the Sacramento River to increase water use efficiency. The associated improvements would increase delivery reliability and eliminate conveyance losses within the affected reach of the system. Figure 2A-1 depicts the area of discussion.

The current conveyance facilities, constructed prior to 1920, include an open ditch and undersized pipe section delivering water to the Churn Creek Bottom area on the east side of the river. The existing Bonnyview Diversion was constructed to restore deliveries to the east side of the river after a flood in 1937 destroyed an elevated flume over the Sacramento River. This diversion, known by the District as the Churn Creek Pumping Plant, had a capacity of 75 cubic feet per second (cfs) when originally constructed, which was consistent with historical demands and deliveries on the east side of the river. However, as a result of facility refurbishment, the current Churn Creek Pumping Plant has a maximum capacity of about 60 cfs.

When implemented, the project would replace the open ditch and undersized pipe sections of the Churn Creek Lateral with a 60-inch-diameter pipeline. In addition, the Churn Creek Pumping Plant would be removed, and the section of the lateral east of the river would be supplied via an inverted siphon or new flume across the river. This in effect would restore the original system and move the Sacramento River diversion for the Churn Creek Lateral upstream 6.5 river miles to the ACID Diversion Dam in downtown Redding near the North Market Street Bridge.

Short-term Component

For the purposes of this project evaluation, Phase 1 of the project is defined as the work east of the Sacramento River to replace this portion of the Churn Creek Lateral with new pipeline. Phase 2 is defined as a siphon or flume river crossing and replacement of the portion of the Churn Creek Lateral west of the river. It is assumed that environmental compliance requirements for Phase 1 would be minimal because the work would occur within the footprint of the canal and have little or no direct short- or long-term environmental impacts. The Phase 2 river crossing, however, may require additional time because of what are perceived to be more challenging environmental compliance issues, including potential impacts to anadromous fish and riparian vegetation.

Phase 1, involving approximately 7,300 linear feet of pipeline, is expected to be completed and fully utilized within 2 years of project funding (to be completed no later than December 2003). For Phase 1, reconnaissance, feasibility studies, and preliminary design are anticipated to require 5 months. Design, permitting, and environmental documentation are

anticipated to require an additional 5 months. Phase 1 would yield essentially all of the water conservation benefits.

Long-term Component

Phase 2 would consist of design and construction of an additional 8,800 linear feet of pipeline and either an inverted siphon or elevated flume across the Sacramento River near the South Bonnyview Road bridge. Reconnaissance, feasibility studies, and preliminary design are anticipated to require 5 months concurrent with Phase 1. Design, permitting, and environmental documentation are anticipated to require an additional 9 to 12 months. Construction would probably be completed during the late summer of 2003, but final connections to the adjacent Churn Creek Lateral (completed several months earlier) would probably not be made until after the irrigation season. Therefore, it is expected that Phase 2 would be officially complete and in operation by April 2004. Although the ACID Manager and Board of Directors recognize the value of phasing this project relative to short- and long-term funding and conservation benefits, they have stated a desire for assurances that both phases would ultimately be funded and implemented.

2. Potential Project Benefits/Beneficiaries

The proposed construction of new facilities is expected to generate numerous benefits for both the local and regional water users. The beneficiaries of this program include ACID, downstream users, the environment, and the Sacramento-San Joaquin Delta. The following benefits are discussed in this section.

- Water Supply Benefits
- Water Management Benefits
- Environmental and Water Quality Benefits
- Energy Savings

Water Supply Benefits

The proposed project would provide the capability to more efficiently manage diversions from the Sacramento River. It would reduce diversions, thereby increasing in-stream flows, and also would reduce evapotranspiration (ET) and seepage losses. Water supply benefits include:

- **Piping**—The piping component would drastically reduce seepage in the Churn Creek Lateral. A 1982 study by the Soil Conservation Service (now called the Natural Resource Conservation Service) indicated that seepage along the east reach of the river may be as much as 8,700 ac-ft/yr. Additional losses have occurred along the lateral on the west side of the Sacramento River. Although the amount of seepage is unknown, it is assumed to be significant along the approximately 1.7-mile segment of the lateral on the west side of the river. Assuming an additional 10,000 ac-ft/yr west of the river, indicated by the relative length of the reach, this project would eliminate the seepage losses and produce approximately 19,000 ac-ft/yr of new water.
- **Water shortages**—Several Redding Basin municipal and industrial (M&I) Central Valley Project (CVP) water service contractors face shortages during dry years. The project

could produce water that could be used to meet water needs. The project would potentially increase the seasonal supply in the Sacramento River downstream of the diversion point. This water could then be made available for other beneficial uses under appropriate short-term or long-term water transfer arrangements with ACID.

Water Management Benefits

Water management benefits include:

- **System efficiency**—The predominant goal of the project is to increase water use efficiency and conserve water. The installation of underground piping of ACID's Churn Creek Lateral would substantially improve the District's ability to more efficiently utilize their supply. The District, its patrons, and adjacent landowners would benefit by virtue of the new pipeline eliminating seepage onto adjacent property and requiring less maintenance.
- **Capacity**—When originally constructed, the Churn Creek Pumping Plant had a 75-cfs capacity. When the facility was refurbished, its capacity decreased to a maximum of 60 cfs. Implementations of the project would enable the system to provide a 75-cfs capacity, consistent with historical demands and deliveries on the east side of the river.

Environmental and Water Quality Benefits

As ACID's primary source of supply, the Sacramento River would be directly and most beneficially influenced by the District's efficient use of its water supply. The potential 19,000 ac-ft/yr decrease in surface water diversions has the potential for increasing available seasonal in-stream flows to the Sacramento-San Joaquin Delta. This additional water would contribute to addressing Delta water quality concerns that have been at the core of CALFED and other programs' efforts for the past several years. These and other potential environmental benefits associated with this project would be quantified throughout the various stages of the project, from the feasibility study through final design. Beyond flow augmentation, two of the other environmental benefits that have been identified at this level of investigation include:

- **Removal of an existing river diversion**—This project would result in the removal of the Churn Creek Pumping Plant, which would eliminate any potential for fish entrainment or impingement.
- **Restoration/creation of aquatic habitat**—The footprint of the Churn Creek Pumping Plant, upon its removal, would revert to natural aquatic and riparian habitat.

Energy Savings

The three 300-horsepower pumps in the Churn Creek Pumping Plant would be eliminated. These pumps presently consume approximately 770,000 kilowatt hours per year. Given the present power crisis in California, the elimination of this pumping plant and its energy requirements provides a significant benefit to all Californians.

3. Project Costs

The cost opinions shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation from the information available at the time of the estimate. It is normally expected that cost opinions of this type, an order-of-magnitude cost opinion, would be accurate within +50 to -30 percent. Project costs were developed at a conceptual level only, using data such as cost curves and comparisons with bid tabs and vendor quotes for similar projects. The costs were not based on detailed engineering design, site investigations, and other supporting information that would be required during subsequent evaluation efforts.

The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the final project costs will vary from the opinions presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

The overall project (Phase 1 and 2 combined) is expected to cost approximately \$14.4 million, including construction, design, environmental compliance, construction management, and contract administration. Table 2A-1 shows the preliminary costs of implementation.

TABLE 2A-1
Planning-level Project Costs: Phase 1
Anderson-Cottonwood Irrigation District Churn Creek Lateral Improvements

Item	Quantity	Units	Unit Price (\$)	Total Cost (\$ x 1000)	Assumptions
Pipeline	7,300	Feet	420	3,066	60-inch-diameter reinforced concrete pipe at \$7 per diameter inch per foot length
Delivery Turnouts	6	Turnout	20,000	120	Six east of river
Subtotal ->				3,186	
Contingencies and Allowances (30 %) ->				956	
Total Construction Costs ->				4,142	
Environmental Mitigation (5%) ->				207	
Engineering, Environmental, Construction Management and Admin. (25%) ->				1,036	
Total Project Cost ->				5,385	

Project costs would be borne by the primary project beneficiaries, including Delta water quality interests, ACID, and, to a lesser extent, agricultural interests in the Redding area.

Typical annual operations and maintenance (O&M) costs for a project of this nature would be about 1 percent of initial capital costs, or about \$138,000 each year. These costs would consist of inspection and maintenance of the structures and the new pipeline.

TABLE 2A-2
Planning-level Project Costs: Phase 2
Anderson-Cottonwood Irrigation District Churn Creek Lateral Improvements Project

Item	Quantity	Units	Unit Price (\$)	Total Cost (\$ x 1000)	Assumptions
Canal Turnout Structure	1	Structure	50,000	50	70-cfs turnout
Pipeline	8,800	Feet	420	3,696	60-inch-diameter reinforced concrete pipe at \$7 per diameter inch per foot length
South Bonnyview Road Crossing	1	Structure	369,000	396	Length – 200 feet
Delivery Turnouts	10	Turnout	20,000	200	10 west of river
Sacramento River Crossing	1	Structure	990,000	990	Length – 750 feet
Subtotal ->				5,332	
Contingencies and Allowances (30 %) ->				1,600	
Total Construction Costs ->				6,932	
Environmental Mitigation (5%) ->				347	
Engineering, Environmental, Construction Management and Admin. (25%) ->				1,733	
Total Project Cost ->				9,012	

4. Environmental Issues

As noted in Section 2, this project is anticipated to provide benefits in the form of increased water supply, more flexible water management, and improved water quality – all of which could improve the greater Sacramento River ecosystem. Additionally, the project could provide environmental benefits by eliminating the need for the pumping plant, which would eliminate any potential for fish entrainment or impingement. Regional benefits in the form of reduced energy consumption could also accrue from project implementation.

Construction-related impacts would occur prior to project implementation. Construction-related impacts would be similar to other, common construction projects that occur near seasonal drainages and waterways. It is likely that the appropriate level of environmental documentation necessary for this project would be a Mitigated Negative Declaration.

Implementation of the project would also require issuance of permits from various regulatory agencies. Following is a summary of the likely permitting requirements. Additional permitting requirements may be identified pending further project refinement.

- **Regional Water Quality Control Board**—Large amounts of earthwork would be required for the construction of the 60-inch-diameter pipe. Depending upon project configuration and location, Water Quality Certification under the federal Clean Water Act may be required for construction.
- **Federal and State Endangered Species Act**—Consultation with state and federal resource agencies (e.g., USFWS, NMFS, CDFG) may be required to protect special-status species and their habitat.
- **U.S. Army Corps of Engineers**—The project may affect wetland habitat and require a permit for discharge of dredged or fill material pursuant to Section 404 of the federal Clean Water Act.
- **State Reclamation Board**—The project may be subject to rules regarding encroachment into existing floodways.
- **Federal Emergency Management Agency (FEMA)**—Letters of map revision need to be filed with FEMA for projects that affect Flood Insurance Rate Maps.
- **California Department of Fish and Game**—If alterations to streams or lakes are required as part of project implementation, a Streambed or Lakebed Alteration agreement may be required.
- **Local governments and special districts**—Specific agreements for rights-of-way, encroachments, use permits, or other arrangements may need to be made with local entities in the vicinity of the project.

A draft CEQA environmental checklist has been prepared for this proposed project and is included as an attachment to this evaluation. The checklist provides a preliminary assessment of the environmental areas of concern, as well as areas that are not likely to be of concern, associated with this project. The checklist would be finalized as part of the environmental compliance required for project implementation.

5. Implementation Challenges

Project implementation would occur in several incremental stages, each of which would pose significant challenges. Many of these challenges would be inherent to any project of this size. The project would need to be developed in a manner that supports the objectives of the local and regional water management plans. The following point of discussion address some of the anticipated implementation challenges for this project:

- **Water rights implications**—The District's water rights would have to be guaranteed and preserved. Although the District would be expecting to decrease their annual surface water diversions, it should not be assumed that they would accordingly relinquish a comparable amount of their water rights.

- **Construction period**—The construction of the river crossing would be influenced by river conditions, the allowable construction period as determined by endangered species issues, and cofferdamming challenges. It is expected that the allowable construction window within the river would be very short in duration, probably during the summer months when the river is flowing at a relatively high rate because of downstream irrigation uses.

6. Implementation Plan

Extensive engineering and environmental investigations are necessary to further evaluate this project. The implementation plan is shown on Figure 2A-2.

Tasks Common to Phase 1 and 2

1.1 Feasibility study—Initial effort would focus on collecting and reviewing information to evaluate alternatives, identify project constraints, and develop budget-level cost estimates. Preliminary geotechnical data would also be gathered to confirm the locations and extent of seepage problems. The feasibility study is estimated to require 3 months to complete.

1.2 Environmental reconnaissance—This task would provide for biological field surveys, resource database review, and other reconnaissance necessary to determine permitting requirements and the appropriate level of environmental documentation required for implementation of the project. This task would also support selecting an alignment of the river crossing portion of the lateral during the preliminary design task by identifying any sensitive areas or issues of environmental concern. The environmental reconnaissance is estimated to require 3 months to complete.

2.1 Preliminary design—This task would make use of the information collected earlier to establish sites for turnouts, alignment of the river crossing, pipe materials, and type of river crossing (siphon versus flume). Sufficient design would be completed to determine budget estimates of construction cost and to establish the preferred alternative for subsequent NEPA/CEQA compliance. The preliminary design is estimated to require 2 months to complete.

Tasks Specific to Phase 1 Only

2.2 Permitting and environmental documentation—This task would consist of an extension of environmental reconnaissance, resulting in verification that Phase 1 has no significant affect on the environment. This would be determined through completion of environmental checklists per NEPA and CEQA. Phase 1 permitting and environmental documentation is estimated to require 3 months to complete.

2.3 Final design—The new pipeline would be evaluated and designed according to hydraulic and site conditions. It is anticipated that the new pipeline would be 60-inch-diameter reinforced concrete. Construction plans and specifications would be developed to facilitate bidding for one construction contract. Phase 1 final design is estimated to require 5 months to complete.

3.1 Construction—This task would include the construction/installation of the pipeline east of the Sacramento River. This task would also include the effort and cost of securing temporary easements, if necessary, to allow for construction. Construction is estimated to require 6 months to complete, presumably during the winter months (i.e., non-irrigation season) when the facility is out of service

3.2 Construction management and inspection—This task would provide for the services of an engineering consultant to administer the construction contract and inspect the work for compliance with the contract documents. Services would include processing the contractor's pay requests, reviewing construction submittals, materials testing, and startup procedures. Construction management and inspection is estimated to parallel construction in terms of schedule.

Tasks Specific to Phase 2 Only

2.2 Permitting and environmental documentation—This task would include preparation of an environmental document (anticipated to be an environmental assessment/initial study [EA/IS]) in accordance with NEPA and CEQA, respectively. Phase 2 permitting and environmental documentation is estimated to require up to 12 months to complete.

2.3 Final design—The river crossing would be designed for either a siphon or flume configuration. Major considerations during design would include the need to construct the crossing very quickly, coffer damming requirements and constraints, river conditions, and expected scour and required pipe protection. Consideration would be given to both open trenching and tunneling methods. The new pipeline reach west of the river would be evaluated and designed according to hydraulic and site conditions. Like the reach east of the river, it is anticipated that the new pipeline would be 60-inch-diameter reinforced concrete. Construction plans and specifications would be developed to facilitate bidding for one construction contract, assumed to be executed after the completion of Phase 1. Phase 2 final design is estimated to require 6 months to complete

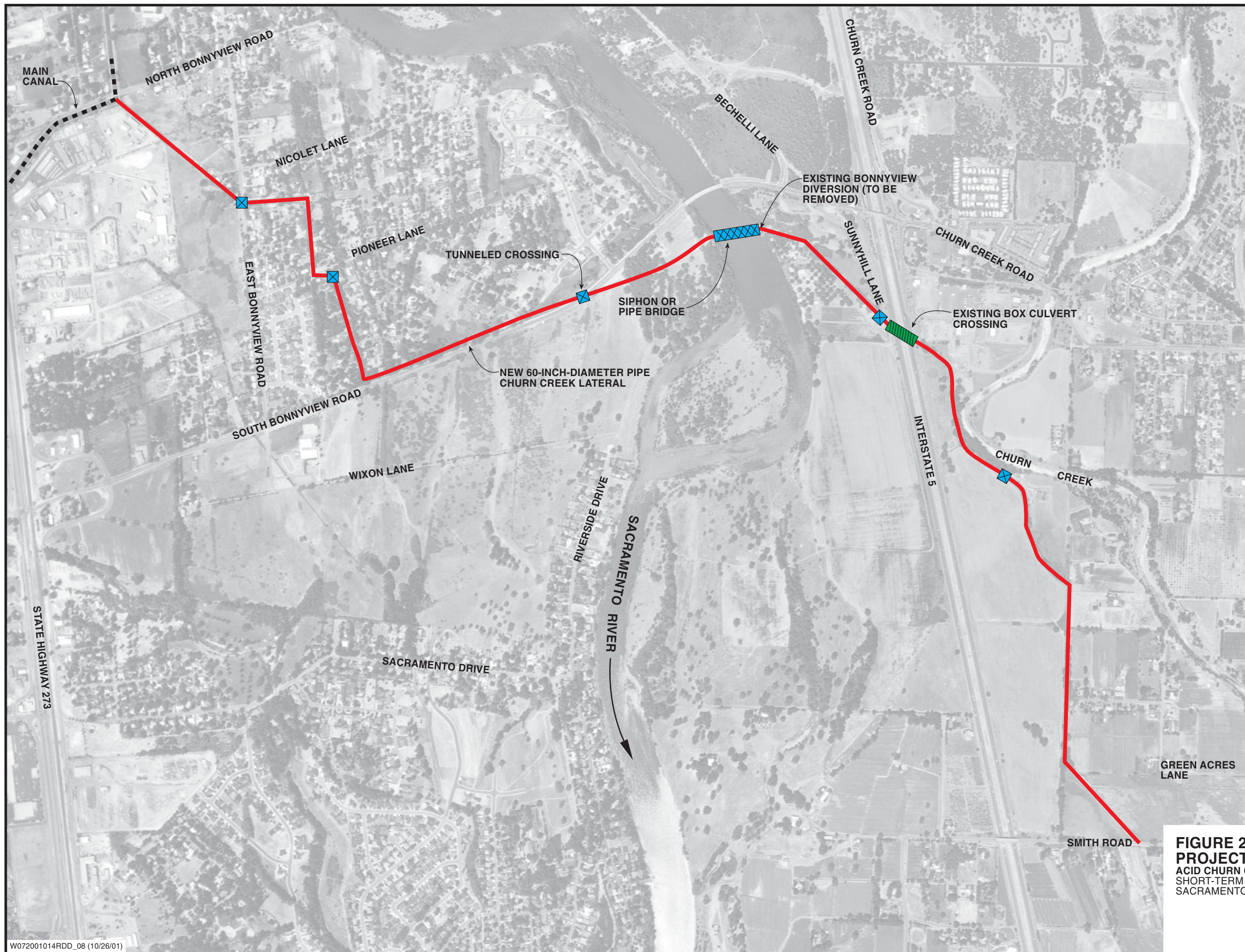
3.1 Construction—This task would include the construction/installation of the new pipeline west of the river, the river crossing, demolition of the existing pump station, and connection to the upstream end of the Phase 1 pipeline. This task also includes the effort and cost of securing temporary easements, if necessary, to allow for construction. It is anticipated that construction of the river crossing would be limited to an approximate 3-month period during the late summer to minimize impacts on migrating salmonids, and to provide the most stable river flows available during the calendar year. The pipeline reach associated with Phase 2 may need to be constructed during the winter months to avoid interference with irrigation deliveries, unless irrigation flows can be bypass pumped for short periods.

3.2 Construction management and inspection—This task would provide for the services of an engineering consultant to administer the construction contract and inspect the work for compliance with the contract documents. Services would include processing the contractor's pay requests, reviewing construction submittals, materials testing, and startup procedures. Construction management and inspection is estimated to parallel construction in terms of schedule.

Other Tasks Common to Phases 1 and 2

4.1 Operation and maintenance—O&M of all new facilities and equipment is proposed to be accomplished by the District. O&M is considered in this proposal to be an in-kind, cost-sharing service in perpetuity.

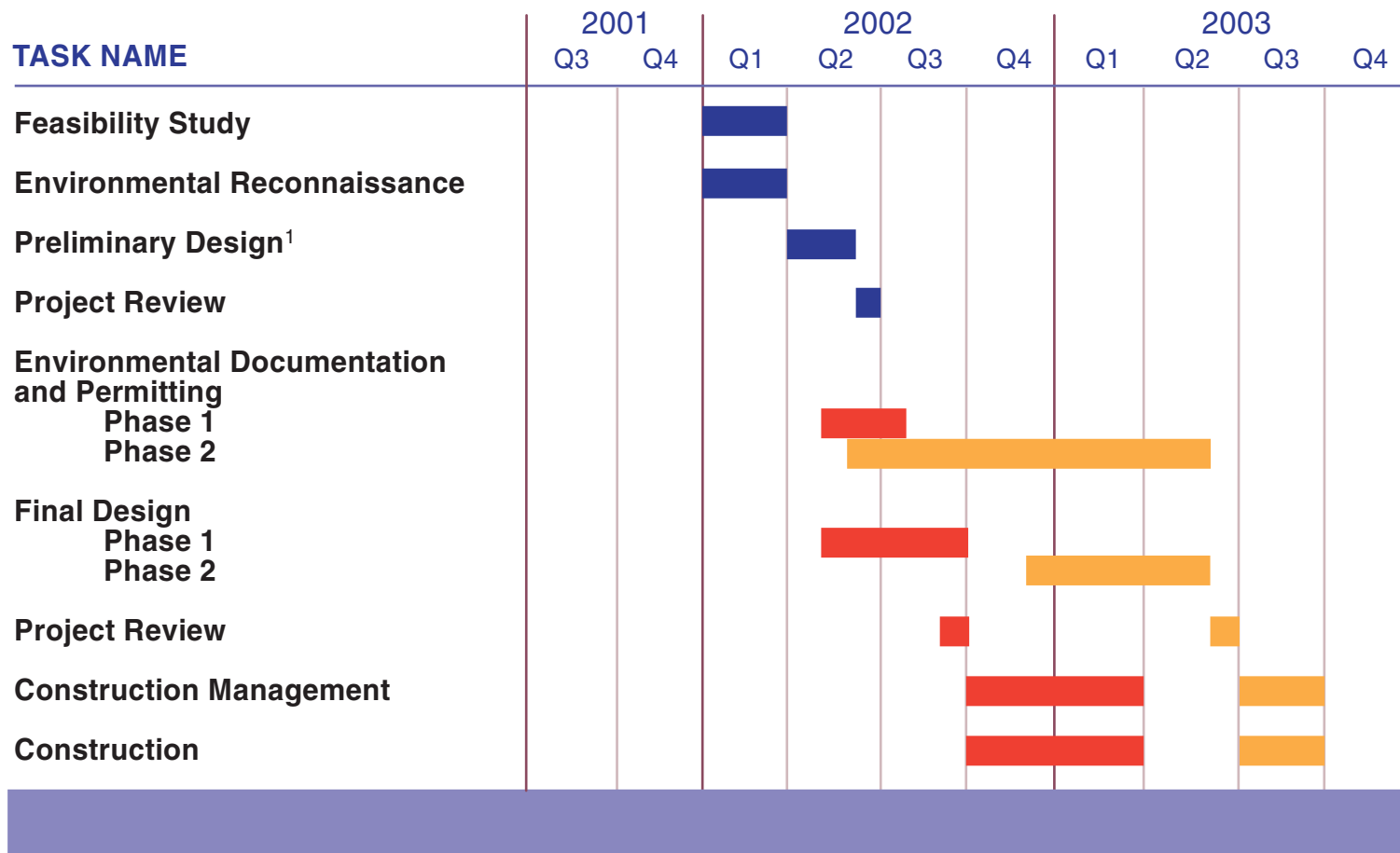
5.1 Contract management and administration—This task would incorporate management of project costs and schedule, administering grant funds, developing work plans, coordinating with other entities and agencies, and overseeing activities of the project team. Contract management and administration is estimated to require 1.75 years to complete from the start of the project to final completion of Phase 2 construction.



W072001014RDD_08 (10/26/01)

FIGURE 2A-1
PROJECT LOCATION MAP
ACID CHURN CREEK LATERAL IMPROVEMENTS
SHORT-TERM PROJECT EVALUATIONS
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

CH2MHILL
in association with
MONTGOMERY WATSON HARZA
MBK
SWRI



¹Cost associated with review is included in design cost.

LEGEND

- PHASES 1 AND 2
- PHASE 1 ONLY
- PHASE 2 ONLY

FIGURE 2A-2
PRELIMINARY IMPLEMENTATION SCHEDULE
 ACID CHURN CREEK LATERAL IMPROVEMENTS
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

**Project 2A—Draft CEQA
Environmental Checklist**

Project 2A—Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

Determination:

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

For

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>I. AESTHETICS</u> —Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>II. AGRICULTURE RESOURCES</u> —Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>III. AIR QUALITY</u> —Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Increased air emissions could result from construction of the project. Implementation of best management practices (BMPs) during construction would reduce the amount of emissions, and reduce the impact to a less than significant level.</i>				
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>IV. BIOLOGICAL RESOURCES</u> —Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Known Endangered Species Act (ESA)-listed species such as the valley elderberry longhorn beetle and the giant garter snake are within the area. Additionally, sensitive riparian habitat exists in and around the project site. Project construction scheduling would have to reflect environmental regulatory requirements including any limitation on windows of construction.</i>				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or, impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>The removal of some vegetation may be required for construction of the project. Mitigation measures would be implemented to replace vegetation removed during construction, which would reduce the impact to a less than significant level.</i>				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
<u>V. CULTURAL RESOURCES</u> —Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>A significant impact would occur if a cultural resource were to be disturbed by activities associated with project development. In the event that an archaeological resource was discovered, appropriate measures would be undertaken to minimize any impacts.</i>				

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>VI. GEOLOGY AND SOILS</u> —Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>VII. HAZARDS AND HAZARDOUS MATERIALS</u> —				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? <i>Construction equipment would require the use of potentially hazardous materials. The potential for significant hazardous material spill would be unlikely because of the limited amount of such materials that would be used onsite. If a spill or release of such materials were to occur, it could potentially be significant unless BMPs were implemented.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HYDROLOGY AND WATER QUALITY—				
Would the project:				
a) <i>Violate any water quality standards or waste discharge requirements?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increases in turbidity would be likely to occur during any in stream construction work. Additionally, there is a potential for an increase of erosion and sedimentation from construction activity. This could be a significant impact and would require an erosion control plan and the implementation of BMPs to reduce any impacts to waterways in and around the project area.				
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) <i>Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING —Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
X. MINERAL RESOURCES —Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE —Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term noise levels are expected to increase for the duration of construction. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.</i>				
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XII. POPULATION AND HOUSING—Would the project:</u>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XIII. PUBLIC SERVICES—Would the project:</u>				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>XIV. RECREATION—Would the project:</u>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XV. TRANSPORTATION/TRAFFIC</u> —Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XVI. UTILITIES AND SERVICE SYSTEMS</u> —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XVII. MANDATORY FINDINGS OF SIGNIFICANCE</u>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>